Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Evidence-based guidelines for the chiropractic treatment of adults with headache.

Bibliographic Source(s)

Bryans R, Descarreaux M, Duranleau M, Marcoux H, Potter B, Ruegg R, Shaw L, Watkin R, White E. Evidence-based guidelines for the chiropractic treatment of adults with headache. J Manipulative Physiol Ther. 2011 Jun;34(5):274-89. PubMed

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The strength of evidence and grade of recommendation (strong, moderate, limited, and conflicting) definitions are provided at the end of "Major Recommendations" field.

Treatment of Migraine

- Spinal manipulation is recommended for the management of patients with episodic or chronic migraine with or without aura. This recommendation is based on studies that used a treatment frequency 1 to 2 times per week for 8 weeks (evidence level, moderate).
- Weekly massage therapy is recommended for reducing episodic migraine frequency and for improving affective symptoms potentially linked to headache pain (evidence level, moderate).
- Multimodal multidisciplinary care (exercise, relaxation, stress and nutritional counseling, massage therapy) is recommended for the management of patients with episodic or chronic migraine. Refer as appropriate (evidence level, moderate).
- There are insufficient clinical data to recommend for or against the use of exercise alone or exercise combined with multimodal physical therapies for the management of patients with episodic or chronic migraine (aerobic exercise, cervical range of motion [cROM], or whole body stretching).

Tension-Type Headache

- Low-load craniocervical mobilization (e.g., Thera-Band, Resistive Exercise Systems; Hygenic Corporation, Akron, OH) is recommended for longer term (e.g., 6 months) management of patients with episodic or chronic tension-type headaches (evidence level, moderate).
- Spinal manipulation cannot be recommended for the management of patients with episodic tension-type headache (evidence level, moderate).

- A recommendation cannot be made for or against the use of spinal manipulation (2 times per week for 6 weeks) for patients with chronic tension-type headache.
- There is insufficient evidence to recommend for or against the use of manual traction, connective tissue manipulation, Cyriax's mobilization, or exercise/physical training for patients with episodic or chronic tension-type headache.

Cervicogenic Headache

- Spinal manipulation is recommended for the management of patients with cervicogenic headache. This recommendation is based on 1 study that used a treatment frequency of 2 times per week for 3 weeks (evidence level, moderate).
- Joint mobilization is recommended for the management of patients with cervicogenic headache (evidence level, moderate).
- Deep neck flexor exercises are recommended for the management of patients with cervicogenic headache (evidence level, moderate).

Definitions:

Strength of Evidence	Grade of Recommendation
Consistent findings among ≥2 high-quality controlled trials	Strong
Consistent findings among ≥2 low-quality controlled trials and/or 1 high-quality controlled trial	Moderate
One low-quality controlled trial	Limited
Inconsistent findings among multiple controlled trials	Conflicting

Clinical Algorithm(s)

The following algorithms are available in the practitioner guide (see the "Availability of Companion Documents" field):

- Chiropractic assessment of headache
- Chiropractic management of patients with migraine
- Chiropractic management of patients with tension-type headaches
- Chiropractic management of patients with cervicogenic headaches

Scope

Disease/Condition(s)

- Migraine
- Tension-type headache
- Cervicogenic headache

Guideline Category

Assessment of Therapeutic Effectiveness

Management

Treatment

Clinical Specialty

Chiropractic

Neurology

Physical Medicine and Rehabilitation

Intended Users

Chiropractors

Occupational Therapists

Physical Therapists

Physicians

Guideline Objective(s)

To provide evidence-informed practice recommendations for the chiropractic treatment of headache in adults

Target Population

Adult patients with headache

Interventions and Practices Considered

1. Spinal manipulation for migraine or cervicogenic headaches
2. Massage therapy
3. Multimodal multidisciplinary care (exercise, relaxation, stress and nutritional counseling, massage therapy)
4. Low-load craniocervical mobilization
5. Joint mobilization
6. Deep neck flexor exercises

Note: The following interventions were considered but not recommended: the use of exercise alone or exercise combined with multimodal physical therapies for the management of patients with episodic or chronic migraine (aerobic exercise, cervical range of motion [cROM], or whole body stretching); spinal manipulation for patients with chronic tension-type headache; manual traction, connective tissue manipulation, Cyriax's mobilization, or exercise/physical training for patients with episodic or chronic tension-type headache.

Major Outcomes Considered

- Frequency, intensity, and duration of headache
- Medicine use
- Quality of life
- Headache-free days/periods
- Neck disability index
- Functional status
- Health status

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The Guidelines Development Committee (GDC) planned for and adapted systematic processes for literature searching, screening, review, analysis, and interpretation.

Data Sources and Searches

Systematic search and evaluation of the treatment literature were conducted using methods recommended by The Cochrane Collaboration Back Review Group and Oxman and Guyatt. The search strategy was developed in MEDLINE by exploring Medical Subject Headings (MeSH) terms related to chiropractic and specific interventions and later modified for other databases. The literature search strategy was intentionally broad. *Chiropractic treatment* was defined as including the most common therapies used by practitioners and was not restricted to treatment modalities delivered only by chiropractors. A wide net was cast to include treatments that may be administered in chiropractic care as well as those that could also be delivered in the context of care by other health care professionals in a specific research study (see Appendix A in the original guideline document). *Spinal manipulation* was defined as a high-velocity low-amplitude thrust delivered to the spine. Excluded therapies included invasive analgesic or neurostimulation procedures, pharmacotherapy, injections of botulinum toxin, cognitive or behavioral therapies, and acupuncture.

Literature searches were completed from April to May 2006, updated in 2007 (phase 1), and updated again in August 2009 (phase 2). Databases searched included MEDLINE; EMBASE; Allied and Complementary Medicine; the Cumulative Index to Nursing and Allied Health Literature; Manual, Alternative, and Natural Therapy Index System; Alt HealthWatch; Index to Chiropractic Literature; and the Cochrane Library (see Appendix A in the original guideline document). Searches included articles published in English or with English abstracts. The search strategy was limited to adults (≥18 years), although research studies with subject inclusion criteria encompassing a broad range of ages, such as adults and adolescents, were retrieved using the search strategy. Reference lists provided in systematic reviews (SRs) were also reviewed by the GDC to minimize relevant articles from being missed.

Evidence Selection Criteria

Search results were screened electronically, and multistage screening was applied (see Appendix B in the original guideline document): stage 1A (title), 1B (abstract); stage 2A (full text), 2B (full text-methodology, relevance); and stage 3 (full text-final GDC screening as clinical content experts). Duplicate citations were removed, and relevant articles were retrieved as electronic and/or hard copies for detailed analysis. Different assessors, using the same criteria, completed the literature screens in 2007 and 2009 due to the time span between searches.

Only controlled clinical trials (CCTs); randomized, controlled trials (RCTs); and systematic reviews (SRs) were selected as the evidence base for this guideline consistent with current standards for interpreting clinical findings. The GDC did not rate observational studies, case series, or case reports because of their uncontrolled nature and probable low methodological quality versus CCTs. This approach is consistent with updated methods for SRs published by the Cochrane Back Review Group. If multiple SRs were published by the same authors on a given topic, only the most recent publication was counted and used for evidence synthesis. Systematic reviews of SRs were also excluded to avoid double counting of research results.

Number of Source Documents

Twenty-one articles met inclusion criteria (16 clinical controlled trials/randomized controlled trials [CCTs/RCTs] and 5 systematic reviews [SRs]) and were used to develop recommendations.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Not Given)

Rating Scheme for the Strength of the Evidence

Not stated

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Literature Assessment and Interpretation

Quality ratings of controlled clinical trials (CCTs) or randomized controlled trials (RCTs) included 11 criteria answered by "yes (score 1)" or "no (score 0)/do not know (score 0)" (see Table 1 in the original guideline document). The Guidelines Development Committee (GDC) documented 2 additional criteria of interest: (1) researchers' use of International Headache Society (IHS) diagnostic criteria for subject enrollment and (2) evaluation of side effects (see Table 1, columns L and M, in the original guideline document). Use of IHS criteria was relevant to this Clinical Practice Guideline (CPG) process to confirm diagnostic specificity within and across research studies. Studies were excluded if IHS diagnostic criteria were not applied by the researchers for subject inclusion into a study (see Appendix C in the original guideline document); and if before 2004, before cervicogenic headache was included in the IHS classification, the diagnostic criteria of the Cervicogenic Headache International Study Group were not used. Side effects were reviewed as a proxy for potential risk(s) with treatment. No weighting factor(s) was applied to individual criteria, and possible quality ratings ranged from 0 to 11. Both blinding of subjects and care providers were rated in the research articles by the GDC, since these items are listed in the quality rating tool. The GDC's methods did not adapt or alter the rating tool. The rationale for this approach was that certain treatment modalities (e.g., transcutaneous electrical nerve stimulation [TENS], ultrasound) and trial designs may achieve patient and/or practitioner blinding. The GDC did not limit the evaluation of these benchmarks of quality if indeed they were reported in clinical studies for the treatment of headache disorders. The GDC also considered it outside their scope of expertise to modify, without validation, a widely used rating tool used to assess the clinical literature. New research tools for the analysis and rating of the manual therapy literature, however, are urgently needed and are noted as an area for future research in the Discussion section (see the original guideline document).

Literature assessors were project contributors separate from the GDC and were unblinded as to study authors, institutions, and source journals. Three members of the GDC corroborated quality rating methods by completing quality assessments on a random subset of 10 articles. A high level of agreement was confirmed across quality ratings. Complete agreement on all items was achieved for 5 studies: in 10 of 11 items for 4 studies and 8 of 11 items for the 1 remaining study. All discrepancies were easily resolved through discussion and consensus by the GDC (see Table 1 in the original guideline document). Due to heterogeneity of research methods across trials, no meta-analysis or statistical pooling of trial results was done. Trials scoring more than half of the total possible rating (i.e., ≥6) were considered high quality. Trials scoring 0 through 5 were considered low quality. Studies with major methodological flaws or investigating specialized treatment techniques were excluded (e.g., treatment not considered relevant by the GDC for the chiropractic care of patients with headache; see Appendix Table 3 in the original guideline document).

Quality rating of systematic reviews (SRs) included 9 criteria answered by yes (score 1) or no (score 0)/do not know (score 0) and a qualitative response for item J "no flaws," "minor flaws," or "major flaws" (see Table 2 in the original guideline document). Possible ratings ranged from 0 to 9. The determination of overall scientific quality of SRs with major flaws, minor flaws, or no flaws, as listed in column J (see Table 2 in the original guideline document), was based on the literature raters' answers to the previous 9 items. The following parameters were used to derive the overall scientific quality of a SR: if the no/do not know response was used, an SR was likely to have minor flaws at best. However, if "No" was used on items B, D, F, or H, the review was likely to have major flaws. Systematic reviews scoring more than half of the total possible rating (i.e., ≥5) with no or minor flaws were rated as high quality. Systematic reviews scoring 4 or less and/or with major flaws were excluded.

Reviews were defined as systematic if they included an explicit and repeatable method for searching and analyzing the literature and if inclusion and exclusion criteria for studies were described. Methods, inclusion criteria, methods for rating study quality, characteristics of included studies, methods for synthesizing data, and results were evaluated. Raters achieved complete agreement for all rating items for 7 SRs and for 7 of 9 items for the 2 additional SRs. The discrepancies were deemed minor and easily resolved through GDC review and consensus (see Table 2 in the original guideline document).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Developing Recommendations for Practice

The Guidelines Development Committee (GDC) interpreted the evidence relevant to chiropractic treatment of headache patients. A detailed summary of the relevant articles will be posted to the Canadian Chiropractic Association (CCA)/Federation Clinical Practice Guidelines Project Web site.

Randomized, controlled trials and their findings were appraised to inform treatment recommendations. To assign an overall strength of evidence (strong, moderate, limited, conflicting, or no evidence), the GDC considered the number, quality, and consistency of research results (see the "Rating Scheme for the Strength of the Evidence" field in this summary). Strong evidence was considered only when multiple high-quality randomized controlled trials (RCTs) corroborated the findings of other researchers in other settings. Only high-quality systematic reviews (SRs) were appraised in relation to the body of evidence and to inform treatment recommendations. The GDC considered treatment modalities to have proven benefit(s) when supported by a minimum of moderate level of evidence. Recommendations for practice were developed in collaborative working group meetings.

Rating Scheme for the Strength of the Recommendations

Strength of Evidence	Grade of Recommendation
Consistent findings among ≥2 high-quality controlled trials	Strong
Consistent findings among ≥2 low-quality controlled trials and/or 1 high-quality controlled trial	Moderate
One low-quality controlled trial	Limited
Inconsistent findings among multiple controlled trials	Conflicting

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Not stated

Description of Method of Guideline Validation

Not applicable

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Only controlled clinical trials (CCTs); randomized, controlled trials (RCTs); and systematic reviews (SRs) were selected as the evidence base for this guideline.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate chiropractic treatment of adults with headache

Potential Harms

Of the 16 controlled trials included in the body of evidence for this guideline, only 6 studies adequately assessed or discussed patient side effects or safety parameters (see Table 1, column M, in the original guideline document). Overall, reported risks were low. Three of the trials reported safety information for spinal manipulation. In one study, 4.3% of subjects experienced neck stiffness after initial spinal manipulation that disappeared for all cases after the first 2 weeks of treatment. Soreness or increase in headaches after spinal manipulation (n = 2) were reasons for treatment discontinuation in another study. No side effects were experienced by any subjects in a study using spinal manipulation for the treatment of episodic tension-type headache.

Qualifying Statements

Qualifying Statements

- Shortcomings for this guideline include the quantity and quality of supporting evidence found during the searches. No recent adequately controlled high-quality research studies with reproducible clinical findings have been published for the chiropractic care of headache patients. Studies are needed to further our understanding of specific manual therapies in isolation or in well-controlled combinations for the treatment of migraine, tension-type headache, cervicogenic headache, or other headache types presenting to clinicians (e.g., cluster, posttraumatic headache). Another shortcoming of this literature synthesis is the reliance on published research studies with small sample sizes, short-term treatment paradigms, and follow-up periods. Well-designed clinical trials with sufficient numbers of subjects, longer term treatments, and follow-up periods need to be funded to advance chiropractic care, and spinal manipulation in particular, for the management of patients with headache disorders. As with any literature review and clinical practice guideline, foundational information and published literature are evolving. Studies that may have informed this work may have been published after the conclusion of this study.
- Practice guidelines link the best available evidence to good clinical practice and are only 1 component of an evidence-informed approach to providing good care. This guideline is intended to be a resource for the delivery of chiropractic care for patients with headache. It is a "living document" and subject to revision with the emergence of new data. Furthermore, it is not a substitute for a practitioner's clinical experience and expertise. This document is not intended to serve as a standard of care. Rather, the guideline attests to the commitment of the profession to advance evidence-based practice through engaging a knowledge exchange and transfer process to support the movement of research knowledge into practice.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Clinical Algorithm

Foreign Language Translations

Quick Reference Guides/Physician Guides

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Bryans R, Descarreaux M, Duranleau M, Marcoux H, Potter B, Ruegg R, Shaw L, Watkin R, White E. Evidence-based guidelines for the chiropractic treatment of adults with headache. J Manipulative Physiol Ther. 2011 Jun;34(5):274-89. PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 Jun

Guideline Developer(s)

Canadian Chiropractic Association - Professional Association

Canadian Federation of Chiropractic Regulatory and Educational Accrediting Boards (Federation) - National Government Agency [Non-U.S.]

Source(s) of Funding

Funding was provided by the Canadian Chiropractic Association (CCA), Canadian Chiropractic Protective Association, and provincial chiropractic contributions from all provinces except British Columbia. This work was sponsored by The CCA and the Federation.

Guideline Committee

Guidelines Development Committee

Composition of Group That Authored the Guideline

Committee Members: Roland Bryans, DC; Martin Descarreaux, DC, PhD; Mireille Duranleau, DC; Henri Marcoux, DC; Brock Potter, DC; Rick Ruegg, PhD, DC; Lynn Shaw, PhD; Robert Watkin, LLB; and Eleanor White, DC

Financial Disclosures/Conflicts of Interest

No conflicts of interest were reported for this study.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Journal of Manipulative and Physiological Therapeutics Web site .

Availability of Companion Documents

The following is available:

- Clinical practice guideline for the management of headache disorders in adults. Practitioner guide. Canadian Chiropractic Association and Canadian Federation of Chiropractic Regulatory and Education Accrediting Boards. 2012 Jan. 12 p. Electronic copies: Available in English and French from the Canadian Chiropractic Association Web site.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on May 3, 2012. The information was verified by the guideline developer on May 23, 2012.

Copyright Statement

Disclaimer

NGC Disclaimer